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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/696,458	10/29/2003	William E. Slack	PO-7963/MD-02-111	6016

157 7590 12/03/2008

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EXAMINER	
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ART UNIT	PAPER NUMBER
1796	
MAIL DATE	DELIVERY MODE
12/03/2008	PAPER

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte WILLIAM E. SLACK and HERSEL T. KEMP II

Appeal 2009-0240
Application 10/696,458
U.S. Patent Publication 2005/0096449 A1
Technology Center 1700

Decided: December 3, 2008

Before: FRED E. McKELVEY, *Senior Administrative Patent Judge*, and RICHARD E. SCHAFER and SALLY GARDNER LANE, *Administrative Patent Judges*.

McKELVEY, *Senior Administrative Patent Judge*.

DECISION ON APPEAL

A. Statement of the case

Bayer MaterialScience LLC ("Bayer"), the real party in interest, seeks review under 35 U.S.C. § 134(a) of a final rejection (24 January 2007) of claims 1-5:

(1) based on "obviousness-type double patenting" and

(2) as unpatentable under 35 U.S.C. § 102, or in the alternative under 35 U.S.C. § 103, over the prior art.

The evidence of unpatentability is:

(1) Slack, U.S. Patent 6,515,125 B1; and

(2) Polyurethane Handbook 90 (Günter Oertel, ed., Hanser Pub., 2d ed. 1994). Both Bayer and the Examiner refer to the Handbook as Oertel.

Oertel is prior art under 35 U.S.C. § 102(b).

Slack is prior art under 35 U.S.C. § 102(a) and § 102(e). On appeal, Bayer does not attempt to antedate or otherwise eliminate Slack as prior art vis-à-vis the invention defined by claims 1-5.

Claims 1-5 are directed to a composition of matter.

Claims 6-10 and 19, directed to a process, have been indicated as being allowable. Final Rejection, page 1.

We have jurisdiction under 35 U.S.C. § 134(a).

B. Findings of fact

The following findings of fact are believed to be supported by a preponderance of the evidence. References to the specification are to U.S. Patent Publication 2005/0096449 A1. To the extent that a finding of fact is a conclusion of law, it may be treated as such. Additional findings as necessary may appear in the Discussion portion of the opinion.

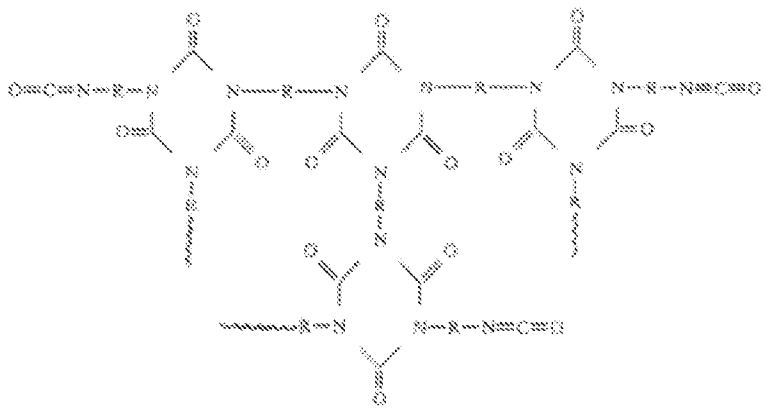
The invention

The Bayer invention on appeal relates to a composition of matter.

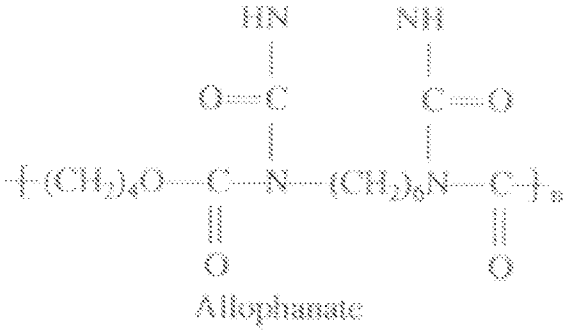
Specifically, the Bayer invention is to a composition of matter comprising a liquid, partially trimerized and allophanized polyisocyanates

having an NCO group content of 15 to 41% by weight, and comprising (1) 5 to 85% by weight of toluene diisocyanate, (2) 5 to 85% by weight of a polyisocyanate of the diphenyl-methane series and (3) an organic compound or mixture thereof. The composition of matter is said to be storage-stable. *See* Abstract.

A trimerized polyisocyanate, also known as an isocyanurate, in its simplest form may be represented by the following formula, which we reproduce from cols. 3 and 4 of U.S. Patent 4,743,627:



An allophanate group may be represented by the formula, which we reproduce from page 237 of Seymour/Carraher's, *Polymer Chemistry* (4th ed. 1996):



Allophanate

The compositions of matter claimed by Bayer generally can be prepared by:

(1) reacting:

(A) from 5 to 85% by weight of toluene diisocyanate isomer and

(B) from 5 to 85% by weight of a polyisocyanate of the diphenylmethane series and

(C) from 0.1 to 10% by weight of an organic compound in the presence of:

(D) at least one trimerization catalyst and *optionally* an allophanation catalyst,

followed by the addition of

(E) an acidic stopper.

Specification, ¶¶ 0020 through 0041.

The process comprises reacting the partially trimerized polyisocyanate with an isocyanate-reactive component containing from 1.5 to 4 hydroxyl groups and having a molecular weight of from 76 to 6,000, or, for example, between 76 and 4,800, at temperatures between 40 and 120 ºC, or, for

example, between 50 and 80 ºC for a time of from 0.5 to 4 hours, or, for example, from 1 to 3 hours. Specification, ¶ 0113.

Claims on appeal

Claim 1-5 are on appeal.

Bayer does not argue the separate patentability of claims 2-5.

Accordingly, we decide the appeal on the basis of claim 1.

Claim 1, which we reproduce from the claim appendix of the Appeal Brief, reads:

> 1. A storage-stable, liquid, partially trimerized and allophanized polyisocyanate having an NCO group content of 15 to 41% by weight, and comprising the partial trimerization and allophanation product of:
>
> (A) from 5 to 85% by weight of toluene diisocyanate having an isomer distribution of:
>
> (1) from 60 to 100% by weight of the 2,4-isomer, and
>
> (2) from 0 to 40% by weight of the 2,6-isomer, with the sum of the %'s by weight of (A)(1) and (A)(2) totaling 100% by weight of (A);
>
> (B) from 5 to 85% by weight of a polyisocyanate of the diphenylmethane series comprising:
>
> (1) from 0 to 50% by weight of polyisocyanates of the diphenylmethane series having an isocyanate functionality greater than 2;
>
> (2) from 40 to 100% by weight of 4,4'-diphenylmethane diisocyanate,

(3) from 0 to 20% by weight of 2,4'-diphenylmethane diisocyanate,

and

(4) from 0 to 6% by weight of 2,2'diphenylmethane diisocyanate,

with the sum of the %'s by weight of (B)(1), (B)(2), (B)(3) and (B)(4) totaling 100% by weight of (B);

and

(C) from 0.1 to 10% be weight of an organic compound or mixture thereof containing from 1 to 4 hydroxy groups capable of reacting with NCO groups and having a molecular weight of from 32 to 6000

wherein the sum of the %'s by weight of (A), (B) and (C) total 100% by weight.

Prior art

(1) Slack, U.S. Patent 6,515,125 B1

Since a double patenting rejection is before us, we reproduce claim 1 of the Stack patent:

1. A storage-stable, liquid, partially trimerized polyisocyanate having an NCO group content of 24 to 40% by weight, and comprising the partial trimerization product of:

(A) from 20 to 88% by weight of toluene diisocyanate having an isomer distribution of:

(1) from 60 to 100% by weight of the 2,4-isomer, and

(2) from 0 to 40% by weight of the 2,6-isomer,

with the sum of the %'s by weight of (A)(1) and (A)(2) totaling 100% by weight of (A); and

(B) from 12 to 80% by weight of a polyisocyanate of the diphenylmethane series comprising from:

(1) 0 to 50% by weight of higher functionality polyisocyanates of the diphenylmethane series,

(2) 40 to 100% by weight of 4,4'-diphenylmethane diisocyanate,

(3) 0 to 20% by weight of 2,4'-diphenylmethane diisocyanate, and

(4) 0 to 6% by weight of 2,2'-diphenylmethane diisocyanate,

with the sum of the %'s by weight of (B)(1), (B)(2), (B)(3) and (B)(4) totalling100% by weight of (B);

wherein the sum of the %'s by weight of (A) and (B) total 100% by weight.

Because claim 1 on appeal calls for the presence of an organic compound having hydroxy (—OH) groups, we also reproduce Slack claim 11:

11. A storage-stable, liquid prepolymer containing a mixed trimer of toluene diisocyanate and a polyisocyanate of the diphenylmethane series, having an NCO group content of about 10 to about 38% by weight, and comprising the reaction product of: (I) the liquid, partially trimerized polyisocyanate of claim 1, and (II) an

organic component containing from about 1.5 to about 4 hydroxyl groups which are capable of reacting with NCO groups, and having a molecular weight of from about 76 to about 6,000.

Two portions of the Slack specification are of interest.

First, the Examiner found that Slack states (col. 8:15-25):

> The process for the preparation of liquid urethane prepolymers having an NCO content of about 10 to about 38% from a liquid, partially trimerized polyisocyanate having an NCO content of about 24 to about 40% by weight comprises reacting the partially trimerized polyisocyanate with an isocyanate-reactive component containing from about 1.5 to about 4 hydroxyl groups and having a molecular weight of from about 76 to about 6,000, most preferably between about 76 and about 4,800, at temperatures between 40 and 120 ºC, preferably between 50 and 80 ºC for a time of from 0.5 to 4 hours, preferably of from 1 to 3 hours.

Second, Bayer points out that Slack states (col. 4:25-32):

> The current invention allows for the preparation of partial trimerization products which are solid-free liquids at 25 ºC. by the partial trimerization of a specific mixture of TDI and MDI. The products made by the present invention can have a high % by weight of trimer (i.e. 20-65%) without the need to include other modifications such as, for example, urethane, allophanate, or carbodiimide, to prevent solids formation at 25 ºC.

(2) Oertel

Oertel reveals that an allophanate group can be formed in the preparation of a polyurethane. The reaction which leads to formation of allophanate "can be carried out uncatalyzed at about 120 to 140 ºC. However, because of side reactions that can occur at these temperatures, catalysts are used in the production process.

C. Discussion

In our view, the double patenting and prior art rejections stand or fall on essentially the same analysis.

As the Examiner notes, claim 11 of Slack differs from the subject matter of claim 1 on appeal in that does not "recite the presence of allophanate groups." Examiner's Answer, page 4.

The Examiner relies on Oertel to show that when a polyurethane reaction takes place at about 120 ºC., allophanate groups are formed even when a catalyst is not used.

The Examiner further points out that Slack states that its composition of matter can be made using a temperature range of from between 40 and 120 ºC. Col. 8:23-24.

Accordingly, the Examiner found that when a temperature of 120 º C. is used, the process of Slack claim 11 more than likely will produce allophanate groups.

Bayer says we have to look at col. 4:25-32, and indeed we do. The Slack invention is said to be capable of producing trimer "without the need to include … allophanate."

Bayer reasons therefore that a person skilled in the art would not have a reason to include allophanate groups in the Slack composition.

The Examiner's come back is that Slack does preclude the presence of allophanate groups; rather Slack simply says that they are not needed. In our view, the Examiner has a point.

Beyond that, the Examiner found that even if Slack does not need allophanate groups, when a temperature of 120 ºC. is used, Slack will get the allophanate groups whether or not they are wanted or needed.

Bayer does not deny that Slack claim 11 would "cover" the subject matter of claim 1 on appeal. So, one way of looking at the case is that when highest Slack temperatures are used in the process for making the Slack composition, the composition of claim 1 on appeal is made even though when lower Slack temperatures are used in the Slack process the composition of claim 1 on appeal may not be made. There are no process conditions set out in claim 1 on appeal, e.g., a temperature range in the "product by process" recitation "partial trimerization and allophanation product of …" which serve to distinguish the subject matter of claim 1 on appeal from Slack claim 11.

We also note that according to Bayer's specification, an allophanation catalyst is *optional*. Specification, ¶ 0041. On this record, we are not told when or why it is optional. However, based on Oertel, it may be that when Bayer uses its described temperature of 120 ºC., an allophanation catalyst is not necessary. An allophanation catalyst being optional in Bayer process is consistent with allophanation groups being formed when Slack uses a temperature of 120 ºC.

Bayer says that the Examiner has "argued" (Bayer means "found" not "argued"—examiners do not argue; rather, examiners make findings and reach conclusions based on the record) that Bayer has not established that the products claimed by Bayer are patentably distinct from the "partial trimerization products disclosed by Slack." Appeal Brief, page 5. The similarity of the Bayer and Slack process at 120 °C. more than justifies the Examiner's finding. Although Bayer could have established otherwise, on this record it did not do so. *Cf. In re Spada*, 911 F.2d 705, 707 n.3 (Fed. Cir. 1990); *In re Fitzgerald*, 619 F.2d 67, 70 (CCPA 1980); *In re Best*, 562 F.2d 1252, 1254 (CCPA 1977).

Bayer also points out that the Examiner found process claims allowable. Appeal Brief, page 6. *First*, the process claims are not before us. *Second*, we therefore express no views on the patentability of the process claims. *Third*, we hold that the Examiner properly rejected claims 1-5 on appeal. *Fourth*, our conclusion with respect to claims 1-5 on appeal disposed of the appeal. The bottom line is that the Examiner's decision with respect to the allowed process claims is irrelevant on this appeal.

In the Reply Brief, Bayer says that Slack and Oertel do not teach or suggest that a hydroxyl group compound be present during Bayer's trimerization. Bayer's problem is that there is nothing in the product by process language of claim 1 on appeal ("partial trimerization and allophanation product") which precludes the presence of the hydroxyl group compound.

We have considered Bayer's remaining arguments and find none that warrant reversal of the Examiner's rejections. *Cf. Hartman v. Nicholson*, 483 F.3d 1311, 1315 (Fed. Cir. 2007).

D. Decision

Bayer has not sustained its burden on appeal of showing that the Examiner erred in rejecting the claims on appeal based on double patenting or as being unpatentable under § 102 or § 103 over the prior art.

On the record before us, Bayer is not entitled to a patent containing claims 1-5.

Upon consideration of the appeal, and for the reasons given herein, it is

ORDERED that the decision of the Examiner rejecting claims 1-5 over the prior art is *affirmed.*

FURTHER ORDERED that the decision of the Examiner rejecting claims 1-5 based on double patenting is *affirmed.*

FURTHER ORDERED that no time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv) (2008).

AFFIRMED

ack

cc (via First Class mail)

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